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ABSTRACT

The activities described in this report were part of a demonstration project designed to test the feasibility of using electronic messages to support information and resources exchange among professionals who serve the developmentally disabled (DD). The one year demonstration included the participation of 26 university based centers across the United States and over 40 of their staff members. The centers which participated are designed to provide training, research and clinical experiences for their professionals working in the DD field. Information sharing revolved around the needs of agencies, and typical messages consisted of updates on events of professional importance as they occurred in Washington. exchange of specific research articles and information on current research, announcements of continuing education opportunities, and job availability announcements. As a result of the demonstration project, a permanent network was developed that now links over 30 university based training centers as well as 14 State Developmental Disability Councils. (MER)

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ELECTRONIC MAIL AMONG UNIVERSITY TRAINING CENTERS

A Demonstration in
National Network Building

by

Barbara McNeal

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Institute for the Future
2740 Sand Hill Road
Menlo Park, California 94025-7097
415-854-6322

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INTRODUCTION

During the needs-assessment phase of the Telecommunications and Service to the Developmentally Disabled Project,* project staff visited University Affiliated Programs (UAPs) across the country. One important goal articulated by UAPs during those visits was the development of a network for sharing resources and expertise among those specialized centers.

The centers are designed to provide training, research, and clinical experience for professionals working in the developmental disabilities (DD) field. Their staffs include professionals in a variety of disciplines. Although the 47 UAPs share common goals, each functions to a great extent as a separate entity. Building a network across programs was considered a major communication-related need, a need that coincides with one of the overall mandates of the project. To address this need, the demonstration activity reported on here was implemented in November 1979 and ran until September 1980.

The Institute for the Future organized this demonstration, which involved use of a computer-based message system by staff at UAPs. The principal objective was to demonstrate the feasibility of using an electronic message system to support networking efforts among staff at these facilities.

*See Appendix A for background information about the project.

ORGANIZATION OF THE DEMONSTRATION

The national networking demonstration was designed to test the use of electronic messaging to support the exchange of information and resources among UAPs throughout the United States. A commercially available computer message system was used to facilitate these exchanges.*

The Electronic Message System: OnTyme

OnTyme, a computer-based message system marketed by TYMNET, Inc., Cupertino, California, is a text-based communications medium that allows participants to exchange messages by typing on a computer terminal. Gaining access to the system involves dialing a local access port (a telephone number for connection to a central computer) using a standard telephone.

As with other such systems, the user need not have a computer, only a computer terminal and an acoustic coupler for the telephone connection to a computer time-sharing network. The time-sharing network routes the call to a central computer. No computer expertise or knowledge of computer languages is required to use such systems.

Once a user has made the initial connection to the network (log in), he or she supplies an identification code and a password in order to send and receive messages from other users. Messages are dated, numbered, and addressed by the system. They are then stored until the recipient requests a printout. OnTyme accepts user commands for services in uppercase letters only, and all commands must be preceded by a colon. It features limited text editing (corrects by letter, word, or line, but only at the point that a mistake is made) and filing capabilities. It does not provide on-line instructions to users for assistance during use.

Users may be in widely separated locations and may or may not be using the system at the same time. (Real-time message exchange, however, is not possible with this system.) Generally, this system is available for use 24 hours a day.

* A limited pilot test using the same computer-based system was conducted by the AAUAP from March to August 1979. For details about this pilot test, see National Networking Among UAPs: A Pilot Test of Electronic Mail, Institute for the Future, November 1979. For a more complete guide to such systems, see Choosing An Electronic Message System: A Guide for the Human Services, Institute for the Future, September 1980.

The principal activities in implementing the demonstration involved:

- working closely with specific UAP groups that could serve as initial message system users
- encouraging widespread use of the system by staff at all 47 UAPs
- providing consistent training and support to individual users
- tracking system usage levels and costs
- gathering information about the perceived effectiveness of message system use for various activities

Initially, project efforts focused on three specific national UAP task groups that might function as core system users: (1) The National Training Systems Committee, (2) a Satellite and Host Center Communication task group; and (3) a DD Information and Referral task group. These task groups are national UAP special interest committees.

In addition to these three task groups, staff at all UAPs were encouraged to use the message system for general exchanges. Usage fees for all participants were paid with project funds.

A special user guide to the OnTyme system was prepared for the participants in order to simplify the instructions for system use. User training consisted of telephone introductions to the system conducted by an Institute staff person. (Due to the geographic dispersion of the users, in-person training sessions were not feasible.) Throughout the demonstration period, a resource person from the Institute was available (by phone or computer) to assist any participant who experienced difficulty in using the message system.

Institute staff also monitored system use on a regular basis and maintained detailed records of the number of messages sent and received per location and associated costs for system use. Also, near the end of the demonstration, a mail survey of all UAP message system users was conducted. The survey instruments were designed to obtain feedback from participants on their perception of the utility and effectiveness of the demonstration.*

* See Appendix B for copies of the questionnaires and numerical results.

USER GROUPS AND STYLES OF USE

Although message system use by staff at all participating UAPs was encouraged, early organizing efforts focused on the three task groups previously mentioned.* It was expected that these groups would provide a foundation for expanded use. The criteria that guided selection of those task groups emphasized: (1) a perceived need for communication among group members, (2) geographical separation, and (3) a common purpose. These groups were selected by the project staff in consultation with the AAUAP Telecommunications Subcommittee.

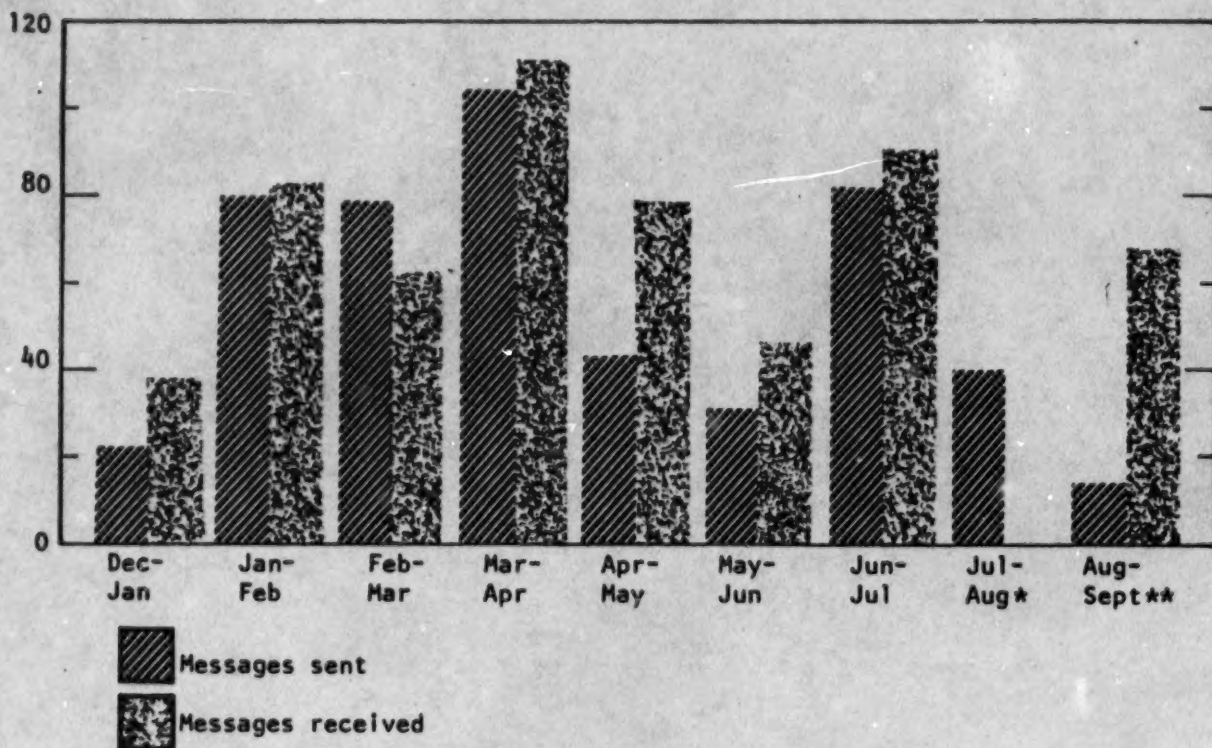
The National Training Systems Committee has 16 members scattered at UAPs in 12 states. Four key people, including the overall chairperson and three subcommittee chairpersons, were identified as potential message system users. The groups' common concern is community-based training programs for people working in the DD field. Their mandate involves identifying existing efforts in this area among UAPs nationwide, promoting resource sharing among these programs, and providing leadership in improving similar training efforts at other facilities.

The committee chairpersons were located at four sites: Staten Island, New York; Ann Arbor, Michigan; Portland, Oregon; and, Philadelphia, Pennsylvania. This subgroup primarily used the message system to exchange draft documents for comment and revision prior to submission to the entire committee. Figure 1 displays usage levels for the four sites.** New York, Michigan, and Oregon used the system most heavily, with Pennsylvania participating only sporadically.

*Two other task groups were also identified: a physician's training group and an instructional technology discipline group. The former did not become an active system user as a task group. The latter was only involved in a short-term planning activity for a national conference, and its experience was not analyzed as a separate user group. Usage by these two groups is included under general purpose use. (Note: For a complete list of all UAP locations and staff who participated in this demonstration, see Appendix C.)

** Usage levels are presented as totals of messages sent and received. In the case of Michigan, interviews with participants indicated that actual system use was twice as high as the figure shows. This is because other unrelated personnel, in addition to task group members, used the system.

FIGURE 1
NUMBER OF MESSAGES SENT AND RECEIVED
Task Group: National Training Systems Committee



*Total number of messages received was unavailable for this period due to a computer error by the system provider.

**Figure 1 (as well as Figures 2 and 3) shows that message receipt during the last month of the demonstration period was significantly greater than the number of messages sent. This may be explained in part by the fact that the participants in the three task groups were accorded separate system IDs to distinguish their use from general purpose use. In most cases, these IDs would not be maintained after the demonstration period, as they were duplicates of the location code for each UAP (e.g., UAP.MONTANA and UAP.MONTANA2). Message sending declined under these duplicate IDs at the end of the demonstration period. Message receipt, however, increased because all outstanding messages must be cleared from the system in order to eliminate an ID.

The most active use of the system by this group occurred about midway through the demonstration period. In general, usage levels fluctuated, and a constant level of use did not develop.

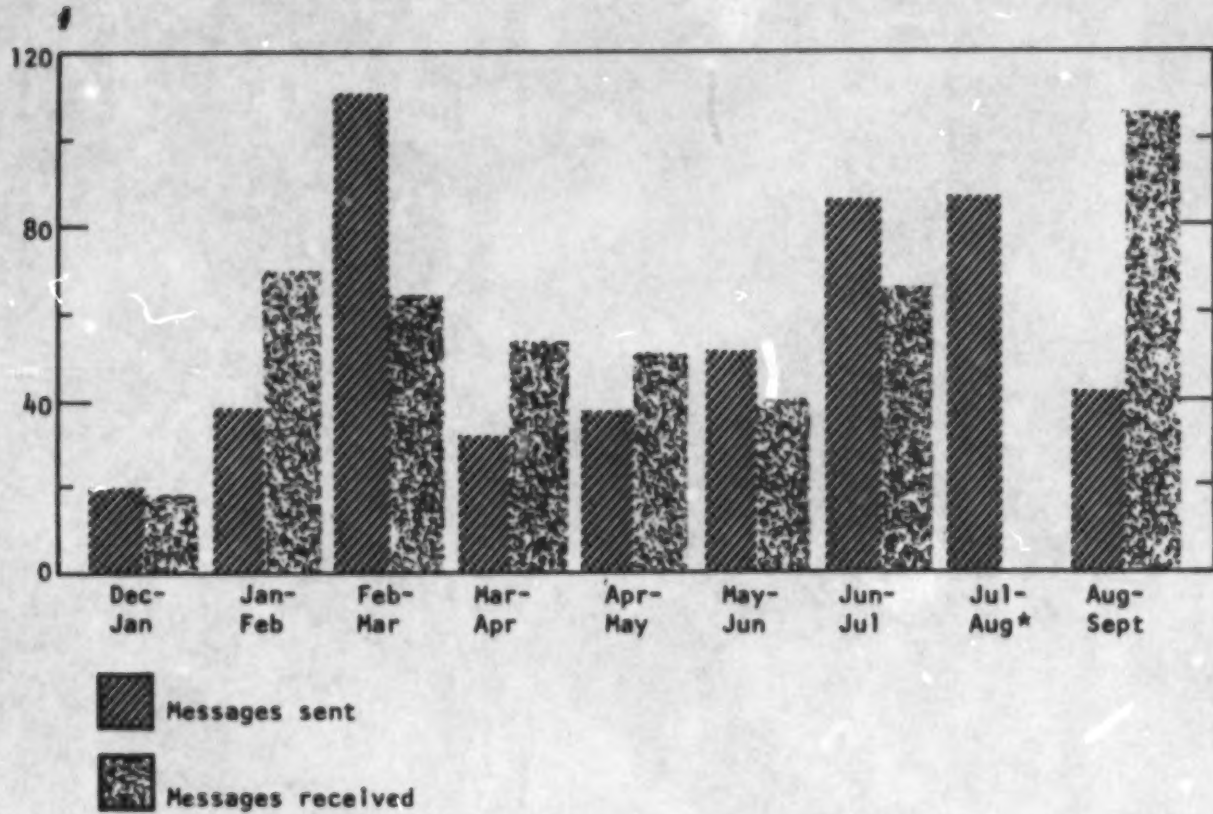
Message system use did not extend to the entire membership of this committee. At least five of the members were located at facilities that lacked appropriate equipment, and several other members chose not to participate even though other staff at their locations were active message system users. At least two committee chairpersons believed that insufficient access to equipment precluded a "fair test" of the usefulness of this approach for communication among the overall membership of this committee.

The Satellite and Host Center Communication task group included members at UAP locations in four states. The term "satellite center" designates a regional or community extension that is oriented toward DD service delivery rather than training and research. The satellite's interdisciplinary program must be affiliated with one or more UAPs; the affiliated UAPs are called "host centers."

The satellite locations that participated in this demonstration included Tsalle, Arizona; Missoula, Montana; and Rochester, New York. Logan, Utah, the host center participating, serves as an affiliated UAP for both the Arizona and Montana satellites. It was expected that communication among these three locations would represent the most active use of the message system by this task group; Figure 2 shows actual usage levels. Although there were some peak usage periods (e.g., February-March), those were generally one-sided, with message sending outstripping message receipt.

In fact, the most active participants were Utah, Montana, and New York. The Arizona location sent very few messages throughout the demonstration period. However, records of message receipt at this location indicate that Arizona participants regularly checked into the system for messages sent by others. The Utah location found the message system a useful tool for quickly getting information to its satellites. In general, these locations found the message system a helpful adjunct for information dissemination and acquisition and for coordination of activities.

FIGURE 2
NUMBER OF MESSAGES SENT AND RECEIVED
Task Group: Satellite and Host Center Communication

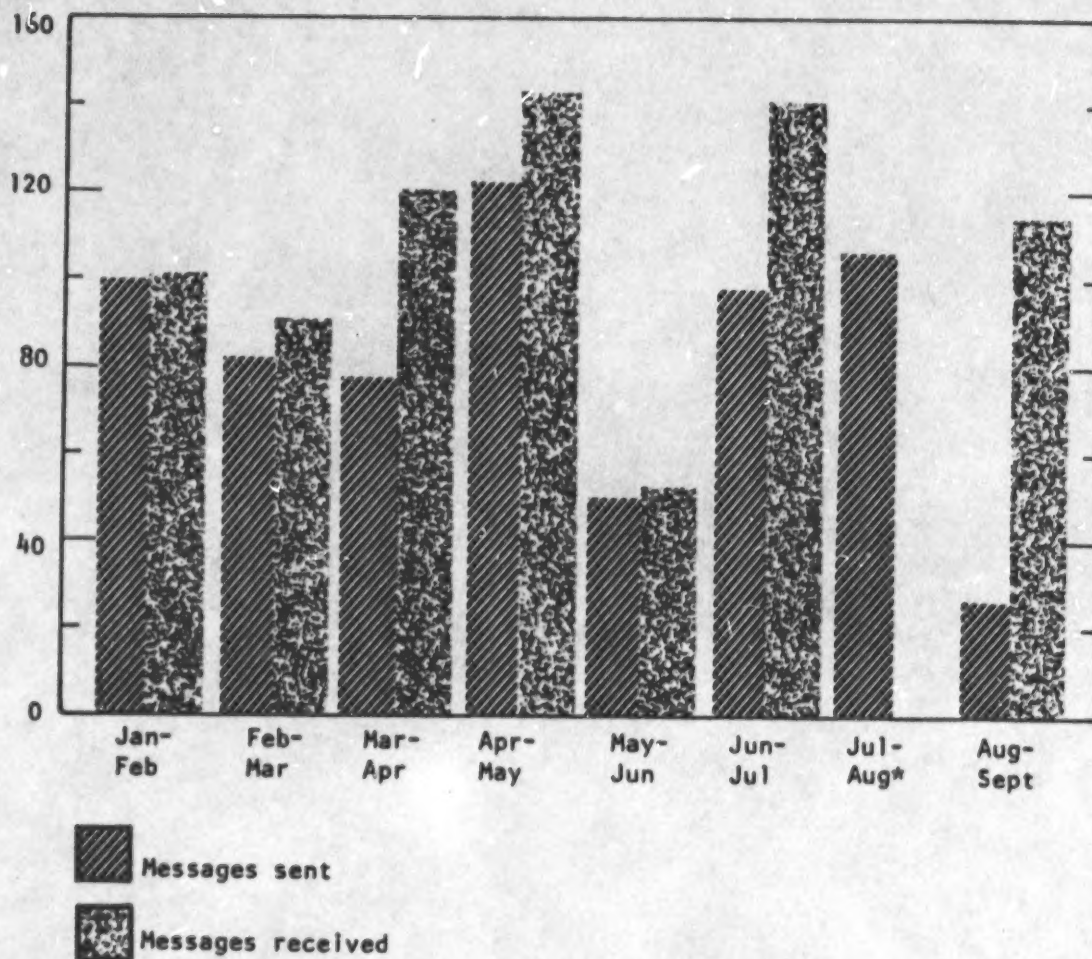


*Total number of messages received was unavailable for this period due to a computer error by the system provider.

The DD Information and Referral task group included members at UAPs in five states. Each of these UAPs is involved in the Region V Developmental Disabilities Information Project. Each of these centers maintains a separate information center that acts as a clearinghouse for identification, organization, and exchange of information and resources in the DD field. This group had used a similar message system previously, and members required little training or assistance with message system organization and use. Figure 3 shows usage levels by this group.

This task group had already established a pattern of regular information exchange via electronic messaging. Their mandate relates to the dissemination of information regarding the provision of services to persons with developmental disabilities. Each center is staffed by information specialists who respond to various requests from care providers, state and community agencies, consumers, and lay persons in a six-state region. Staff members had previous experience with exchanging information and resources via computer messaging. Their participation in the demonstration activity aided in maintaining that link and in improving coordination throughout the region. In this case, the demonstration provided an extension of current activity rather than a new mode of contact for the participants. This may help to explain their more active and consistent usage rates in comparison to the other task groups.

FIGURE 3
NUMBER OF MESSAGES SENT AND RECEIVED
Task Group: DD Information and Referral



*Total number of messages received was unavailable for this period due to a computer error by the system provider.

GENERAL PURPOSE USE

In addition to use by specific task groups, the message system was available to other staff at UAPs. Usage not restricted to task groups, termed "general purpose use" in this report, most closely responds to the concerns expressed by UAP staff during the needs assessment. Their goal was to encourage a general exchange of information and resources among different programs.

The specific content of the exchanges is difficult to define since messages between individuals at different locations are not maintained by the system on a central transcript and were not available for analysis. Messages directed to the attention of all users, however, were available. Typical messages involved:

- AAUAP updates on events in Washington that were of interest to all UAPs, such as activities of AAUAP national committees, federal legislative initiatives affecting UAPs, information on funding sources, and personnel changes at UAPs and related federal agencies
- requests for specific information resources, such as research articles, information on current research and training programs at other facilities, research or journal articles, and media resources
- announcements of continuing education opportunities, such as short courses and seminars for DD professionals
- job availability announcements of current openings for professionals in DD or related fields

Exchanges in the first two categories provided the bulk of general purpose messages. Figure 4 shows sample transcripts from these two categories.

General purpose use increased during the demonstration period, and new participants regularly joined the group. Figure 5 shows levels of general purpose use. Early in the demonstration, the principal motivation new users expressed was a desire to receive the AAUAP periodic updates from Washington.

FIGURE 4
SAMPLE TRANSCRIPTS

SAMPLE A

MSG#: 177164
N#: 464
SENT: 13:39 01APR80
READ: 13:44 01APR80
TO: UAF DIRECTORS
FR: SELDON TODD

REVISED PRESIDENT'S BUDGET CALLS FOR

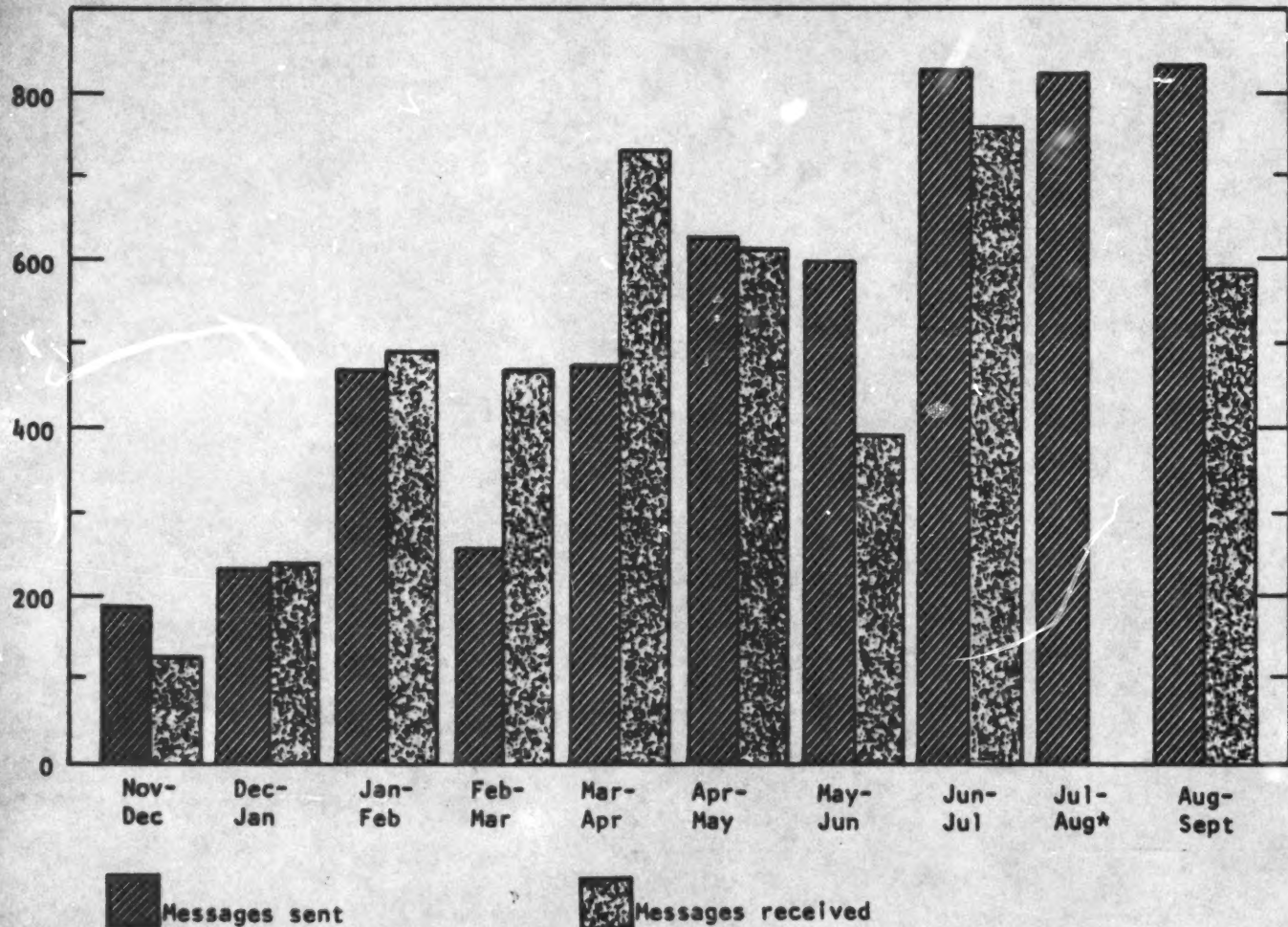
- 1) NO CHANGE IN UAFs UNDER DD ACT
- 2) REDUCTION IN MCH 511 AND 12 AS FOLLOWS
 - A) FY1980 MINUS 6 MILLION DOLLARS
 - B) FY1981 MINUS 7 MILLION DOLLARS

SAMPLE B

MSG#: 126933
IN#: 327
SENT: 14:13 25FEB80
READ: 11:37 26FEB80
TO: ALL UAF'S
FROM: UTAH
SUBJECT: NEEDED TECHNICAL ASSISTANCE TO THE NAVAJO CENTER

THE NAVAJO SATELLITE CENTER HAS REQUESTED INFORMATION CONCERNING MODEL SECONDARY AND POST-SECONDARY VOCATIONAL TRAINING PROGRAMS FOR THE HANDICAPPED. ANY INFORMATION WHICH YOU COULD PROVIDE CONCERNING SUCH PROGRAMS OR PERSONS THAT WE MAY CONTACT WOULD BE HELPFUL. PLEASE ADDRESS RETURNS TO

FIGURE 5
NUMBER OF MESSAGES SENT AND RECEIVED
General Purpose Usage



*Total number of messages received was unavailable for this period due to a computer error by the system provider.

Staff at the AAUAP established a pattern of disseminating information of this nature via the message system on a weekly basis. The messages were compiled at the end of each month and sent by mail to UAP locations that were not using the message system. This activity appeared to be critical in encouraging nonusers to access the system for more timely receipt of updates. Essentially, the monthly update showed nonusers what they were missing. The timeliness of the messages and the apparent interest generated by the information they contained seems to be a major contributing factor in expanded system use. For less timely and less useful information, the monthly updates might have had the opposite effect--encouraging nonusers not to use the system themselves, since they would receive monthly updates anyway.

The message system enhanced possibilities for better coordination of activities and resource sharing among programs nationwide. Throughout the demonstration, general purpose users encouraged use of the system by all 47 centers in order to develop a complete "network" for informational exchanges. Frequently, complaints about system use centered around the inaccessibility through the system of centers that were not using the message system. A listing of active users was maintained and updated on a monthly basis.

COSTS

The basic costs for message system use during the demonstration were related to: number of messages sent, connect time, computer storage, number of input characters, number of sessions, and monthly account service charge.* Cost data were collected under those categories as both costs per location and as combined costs for all locations. Total usage increased steadily during the demonstration period, with no extended periods of decline.** Figure 6 shows monthly costs for all users during the demonstration period.

Due to the cost structure of the commercial service being used, usage costs per site are not uniform. Users in metropolitan areas were charged less per minute of connect time than users in lower population density areas, where telephone lines are more expensive. Centers in remote areas (such as the Arizona and Montana satellites) require even more costly access numbers (i.e., "800" or "WATS" lines). In addition, the amount of connect time a user consumes is affected by typing speed, terminal speed, and length of messages. Storage costs for keeping messages on the system until read by intended recipients are also a factor in determining usage fees.

The number of active IDs (system access codes) also increased over time.*** The sharpest increase occurred during the first three months of the demonstration. Prior to that time, the message system had been available but use was sporadic. At the onset of the demonstration, there were 16 location codes on the system. Within three months, that number had doubled. The cost of message system use per location code provides an indication of how much a location might expect to pay for each month of system use after the demonstration (see Figure 7).

*The monthly account service charge refers to the entire UAP account rather than account charges for each location or user, according to the changing policy of the system being used.

**Total usage includes both task group and general purpose usage.

***The number of people actually using the system has always been higher than the number of system IDs. Several individuals may use a single location code, and a UAP might have more than one access code.

FIGURE 6
TOTAL MONTHLY COSTS FOR MESSAGE SYSTEM USE

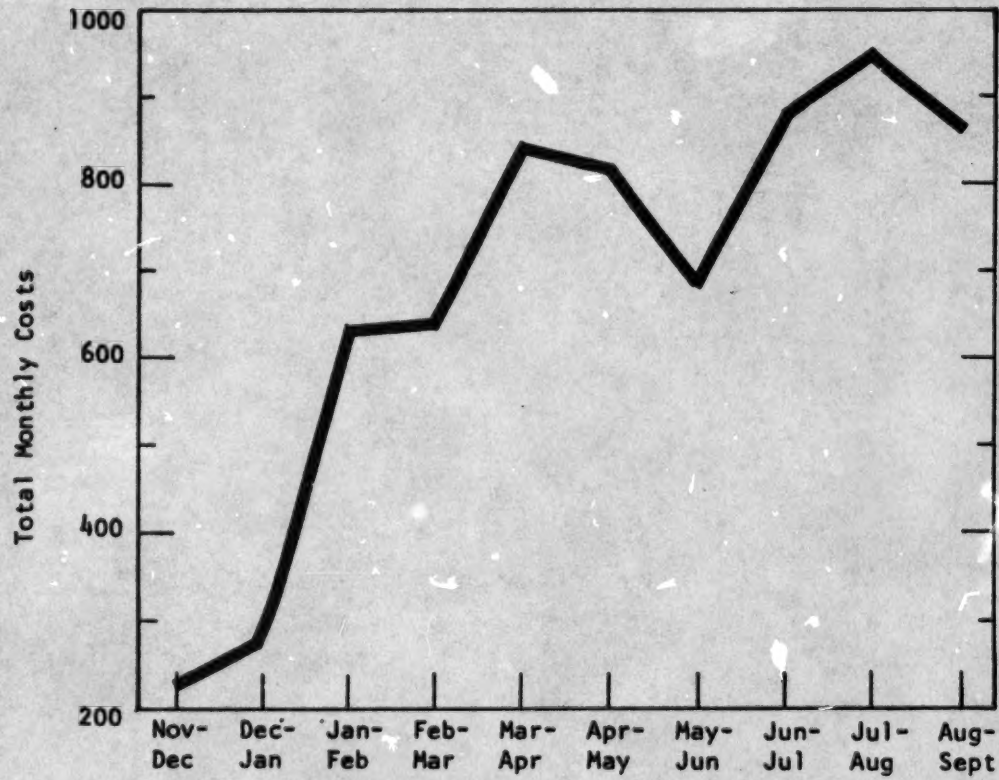
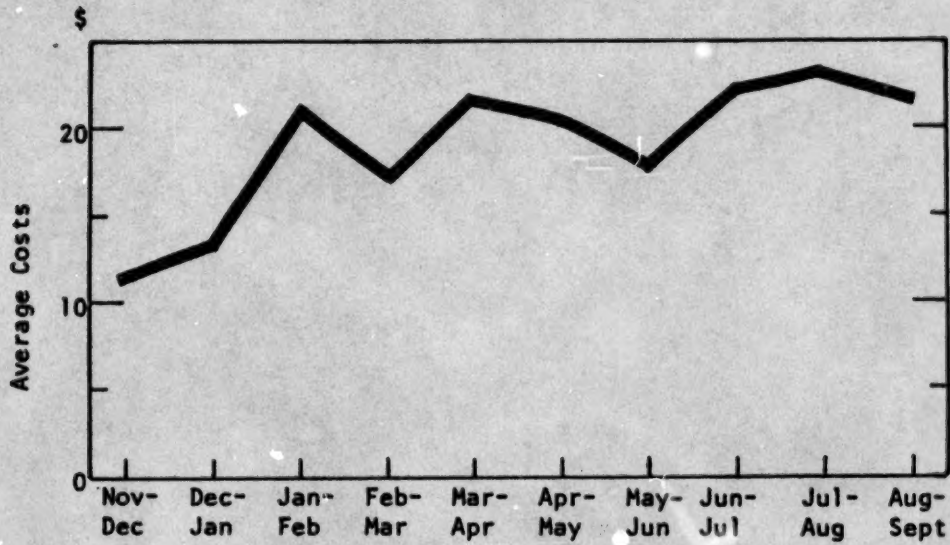


FIGURE 7
AVERAGE COSTS PER LOCATION CODE

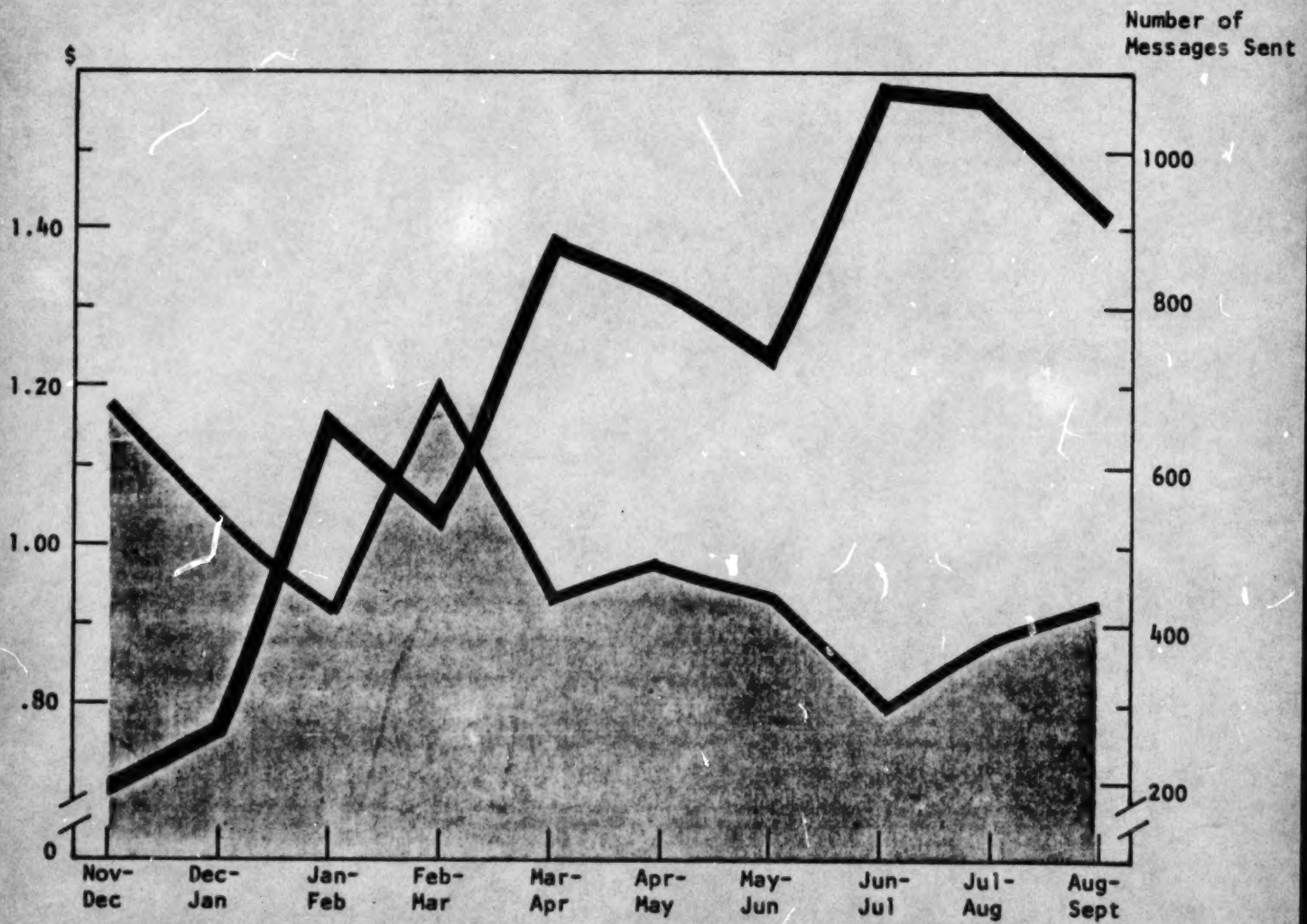


If each of the 47 UAPs and satellites were assigned a single location code and total usage costs remain what they were during the demonstration (an average of approximately \$700 per month), each UAP could reasonably expect to spend about \$15 per month for message system use. Of course, if each location is billed for direct charges based on its actual use, costs could vary considerably depending upon individual usage levels.

Cost for message system use can be defined more specifically by looking at average costs for the number of messages actually sent. Although the specific transmission rate is five cents per message, this figure does not take into account other associated costs, such as connect time. A more accurate reflection of how much each message costs to send can be gained by considering the total cost of system use in conjunction with the number of messages sent. Figure 8 shows average cost per message sent during the demonstration period. The greater the number of messages sent, the lower the average cost per message. The highest average cost per message sent (\$1.21 from February to March) is actually about 10 cents less than a three-minute direct-dial phone call between New York and San Francisco.

At the start of the demonstration, \$6,000 was allocated to purchase equipment. Three portable computer terminals (Texas Instruments No. 745, each costing approximately \$1,650) were purchased during the demonstration and loaned to participants who lacked equipment. The remainder of the equipment budget, together with the three terminals, were given to the AAUAP at the end of the demonstration.

FIGURE 8
AVERAGE COST PER MESSAGE SENT



USER SURVEY RESULTS

During July and August 1980, a mail survey of all UAP message system users was conducted. The results indicated that a significant majority of the users found the demonstration promoted useful communication:

- o 85 percent (28) of the survey respondents indicated that the message system had increased their contact with colleagues at other UAPs.
- o 97 percent (30) thought the network should be expanded to include more UAPs.
- o 89 percent (24) said they would continue to use the system even if they had to pay their own cost.

At the time the survey was conducted, 33 active system identifications were on the UAP account, representing 27 UAP and/or satellite facilities (including the AAUAP). Sixty individuals were identified as system users; the director/administrator and at least one other contact person at each facility received a questionnaire.

Two different survey instruments were used: a one-page questionnaire for message system users who routed their messages through another staff person (secretary or data processing operator) and a four-page questionnaire for those who actually used the computer terminals.* Twenty one-page questionnaires and 40 four-page questionnaires were mailed to participants. The response level was high, with 14 returns on the short questionnaire (70 percent) and 33 returns on the more detailed questionnaire (83 percent).

Level of difficulty in using the message system. Fewer than half the respondents reported any difficulty in using the message system. Generally, these problems concerned equipment (such as double printing) and system access (for example, frequent computer downtime, sporadic disconnections, access to ports).

Preferences in user-training methods. User training consisted primarily of providing each participant with a user guide and telephone instructions on system use. When asked to indicate their preference in training methods, 75 percent (24) of the respondents preferred self-instruction with a user guide. The high number of users who had had previous experience with computers and other keyboard devices (79 percent--26) undoubtedly influenced their training needs and preferences.

*Unless otherwise noted, the results discussed in this section refer to the four-page questionnaire in Appendix B.

Effects of system use on work patterns. Each user was asked to indicate whether or not the message system had affected his or her typical work patterns; more than 61 percent (20) felt that it had had some effect.* A number of positive effects were noted, including:

- more effective communication among geographically separated members of a working group
- fewer long-distance phone calls placed or less time spent waiting for return calls
- fewer letters written
- more responses from colleagues at other locations to requests for specific information

In a number of cases, however, the noted effects were not always positive. For example, some respondents felt that:

- too much of their time was required to check into the system and to route messages to other staffers
- system use brought a much heavier volume of requests for information than they could handle

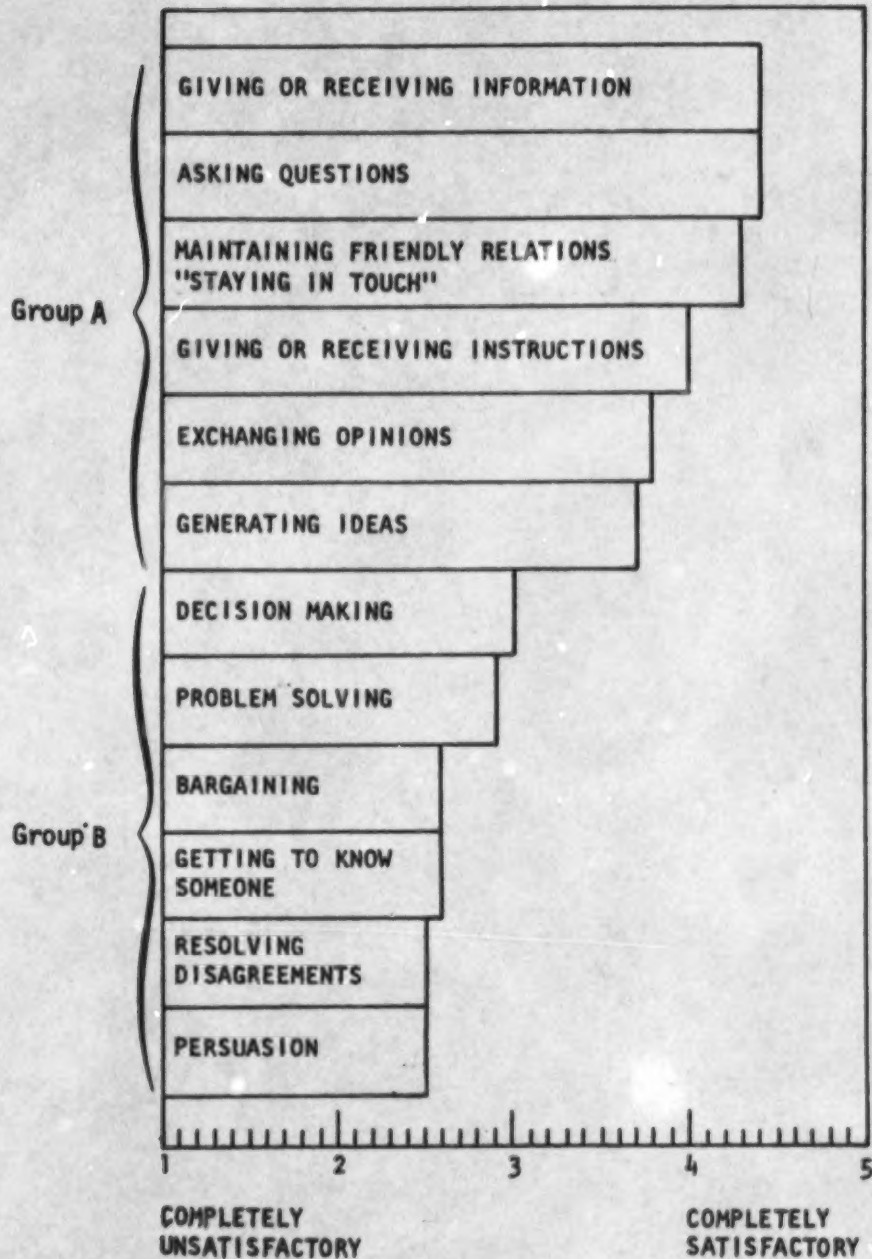
Satisfaction with the system for specific activities. One focal question from the survey was designed to provide an insight to the participants' perception of message system utility for certain tasks. Each respondent was asked to rate his or her level of satisfaction with the message system for a number of group communication-related tasks.** Figure 9 illustrates how survey respondents ranked these tasks on a five-point scale from completely unsatisfactory to completely satisfactory.

Generally, participants considered those tasks related to the simple exchange of information (group A) better suited to the system than those involving somewhat more complex interpersonal dynamics (group B). (Similar results have been obtained for computer message systems in other studies employing a similar taxonomy.)

*62 percent (8) of the respondents to the short questionnaire also noted some effect on their work patterns.

**The taxonomy of tasks is based upon a set of meeting tasks from Roger Pye et al., The Description and Classification of Meetings, Communication Studies Group, London, England, Paper P/73160/PY, 1973. Similar scales have been used in research studies involving computer conferencing, such as Starr Roxanne Hiltz and Murray Turoff, The Network Nation: Human Communication via Computer (Reading, MA: Addison-Wesley), 1978, and Jaques Vallee et al., Group Communication Through Computers: Social, Managerial, and Economic Issues, Institute for the Future, January 1978.

FIGURE 9
Ranking of Group Communication-Related Tasks



When asked to compare message system use with more traditional communication methods, more than 80 percent felt the message system was more productive than conventional mail alone, and 70 percent felt it was more productive than telephone calls alone. When compared to face-to-face meetings, however, respondents considered the message system less productive. This latter finding supports the assumption that most people prefer face-to-face meetings.

Potential for continued system use. The participants were asked to indicate whether or not they would like to see the network expanded and what changes they would like to see in future usage styles. A large majority of respondents wished to see more UAPs involved in message system use.* Participants felt that expanding the network would be a good way to:

- reduce duplication of information
- keep in touch with colleagues at other centers
- broaden the scope of information sources and services
- facilitate national program planning
- ensure an economy of scale in message system use
- achieve a sense of group cohesion by including all UAPs nationwide

Responses to questions involving changes in future message system use were in most cases quite similar. Participants suggested changes related to more efficient use of the system, including:

- restricting use to priority issues in the DD field likely to be of interest to all UAPs
- encouraging the inclusion of more staff members at each facility
- making requests for information more specific
- reducing the number of messages directed to all users which might more appropriately be directed to specific centers
- encouraging more frequent and consistent message pick-up

In addition, some participants felt that the message system itself warranted some improvements such as better text editing and the addition of capabilities for real-time message exchange.

*97 percent of the respondents to the detailed questionnaire and 73 percent of the respondents to the short questionnaire wished to see the network expanded.

CONCLUSIONS

Most of the users in this demonstration perceived the computer-based message system as an effective, cost-efficient way to promote the exchange of information and resources among specialized DD/UAP centers. Electronic messaging proved to be a useful adjunct to more traditional communication modes for this group. Generally, information exchange outpaced specific task group usage. User acceptance of the system was high: a large majority of the users recommended continuing and expanding the network.

The overall goal of this demonstration was to stimulate widespread use of electronic messaging among UAPs nationwide. We began by focusing on special interest task groups as a way to encourage more generalized usage based on their experience with the system. Our vision was that a network of users would develop as more centers became aware of the possibilities for increasing their contact with others via this medium, based on the experience of the task groups. Although more widespread usage did develop, it was not directly related to the activities of the task groups.

We initially focused on the task groups rather than the nature of the information which might be of interest to most UAPs. We concentrated on developing a core group of users as a possible catalyst for expanded use. When expanded usage developed, however, it was clear that the catalyst was the nature of the information rather than the experience base provided by the activities of the task groups. Much of the expanded use early in the demonstration can be traced to the desire by many centers to receive the information being transmitted over the system by the AAUAP. Its monthly update messages regarding issues of general interest, such as funding sources and changes in DD legislation, stimulated widespread interest in using the electronic messaging system among nine UAPs. The appeal of the message system for these new users seemed directly related to the nature of the information and its usefulness for them rather than the less tangible possibility of increased contact with distant colleagues.

This demonstration also reinforces our assumption that a significant amount of organizational effort is required to get things off the ground. The start-up phase of this demonstration was of crucial importance in providing both suggestions for specific usage and an appropriate orientation to the system. Throughout the demonstration, a

significant amount of staff time was spent responding to requests from users for assistance. These requests involved organizational issues such as how the system was being used by others, who else was on-line, and cost factors, as well as problems with access and use. This type of organizational effort is critical in the start-up phase and may be a decisive factor in encouraging ongoing use once the initial novelty of the new system wanes.

High user acceptance of this particular message system was somewhat surprising. Although OnTyme was acceptable to most users, a system with more capabilities could have been employed, given the background of many of the users. Many of them had some previous experience with computers, although in most cases that experience may have been with data storage and retrieval systems rather than with electronic messaging. Those users who had experience with other messaging systems (notably, members of the DD Information and Referral Group) were much more vocal about OnTyme's inelegance compared to other message systems.

The lesson here may be that care is needed in choosing a system which most appropriately matches the basic skill levels and expectation of the users, as well as providing some degree of flexibility for more experienced users. A different type of system may have provided a more broad-based test of the usefulness of different capabilities such as real-time conferencing. Users might have been given the opportunity to try a wider range of features and to better judge what features most suited their needs.

The implications of this demonstration stretch beyond the use of computer messaging by these centers. This demonstration provides one instance of effective use of an electronic message system in linking human service providers on a national basis. Use of electronic message systems by similar provider groups is possible given the commercial proliferation of such systems, the relatively low costs involved for start-up (especially if equipment is already available), and the ease with which such systems can be used by both experienced computer users and novices. Localized information exchanges may be particularly attractive. For example, various branches of a state or regional human services group (e.g., protection and advocacy groups, DD councils, regional DD centers) may find this communication tool useful for coordination activities and keeping in touch with distant colleagues.

Direct use of computer messaging by developmentally disabled people is also possible. A number of adaptive devices for handicapped people are already commercially available. Such devices facilitate use of computer terminals and therefore

access to additional resources by handicapped users. Also, because electronic messaging is a text medium, a handicapped user may experience a more equitable interaction with other users than might have been possible in a face-to-face setting.

This demonstration provides a unique experience base for other groups of DD and related service providers and consumers that might be considering electronic messaging in the future.

APPENDIX A

PROJECT BACKGROUND AND PUBLICATIONS

PROJECT BACKGROUND

In September 1978, the Alternate Media Center, School of the Arts, New York University, received a two-year grant from the Department of Health and Human Services (formerly the Department of Health, Education and Welfare) to explore and demonstrate potential applications of telecommunications in the field of developmental disabilities. This work is being conducted in collaboration with the American Association of University Affiliated Programs, the Department of Pediatric Service at The Roosevelt Hospital in New York City, and the Institute for the Future in Menlo Park.

After an extensive needs assessment, the project team in conjunction with its advisory board decided on a three-pronged approach to demonstrations:

- In collaboration with the UAP satellite in Burlington, Vermont, and with other Vermont DD organizations, implement a coordinated program of telecommunications applications focusing within that state
- explore the use of telecommunications for national "networking" among UAPs and related centers
- provide technical assistance to a limited number of projects that attempt to make innovative use of telecommunications in the DD field

Two separate electronic message systems were used in this project: EIES (Electronic Information Exchange System at the New Jersey Institute of Technology) and OnTyme (offered by TYMNET, Inc.). Reports on each of these demonstrations are available upon request from the Institute, as are earlier studies of group communication through computers.

PUBLICATIONS

TELECOMMUNICATIONS AND SERVICE TO THE DEVELOPMENTALLY DISABLED

VOLUME 1: NEEDS AND OPPORTUNITIES

April 20, 1979

Summarizes results from project needs assessment, the rationale for demonstrations, and an appraisal of telecommunications options.

VOLUME 2: APPLICATION POSSIBILITIES

May 15, 1979

Discusses ideas for DD telecommunications applications gathered during needs assessment. Glossary. Bibliography.

VOLUME 3: DECISIONS ON DEMONSTRATION PROJECTS

July 2, 1979

Presents decision for implementation phase of project.

NATIONAL NETWORKING AMONG UAPS: A PILOT TEST OF ELECTRONIC MAIL

November 1979

Summarizes results of pilot test of computer-based message system conducted by the American Association of University Affiliated Programs.

A MANUAL FOR UAF ONTYME MESSAGE SYSTEM USERS

November 1979

A specially prepared user's guide for UAP electronic message system users.

NATIONAL NETWORKING AMONG UAPS: A TELECOMMUNICATIONS DEMONSTRATION

January 1980

Outlines plan for UAP national networking demonstration.

**MAKING TELECOMMUNICATIONS WORK FOR THE
DEVELOPMENTALLY DISABLED: A FIRST REPORT
ON THE VERMONT DEMONSTRATIONS**

January 1980

Reviews specific applications under way or
planned for Vermont.

**CHOOSING AN ELECTRONIC MESSAGE SYSTEM:
A GUIDE FOR THE HUMAN SERVICES**

September 1980

An introduction to strengths and weaknesses
of electronic message systems.

**ESTABLISHING A TELEPHONE CONFERENCING SYSTEM:
THE DYNAMICS OF DOING IT**

September 1980

Summarizes most important factors in
establishing a telephone conferencing system.

**ELECTRONIC MAIL AMONG UNIVERSITY TRAINING CENTERS:
A DEMONSTRATION IN NATIONAL NETWORK BUILDING**

November 1980

Final report of the national
networking demonstration.

Copies of the above papers
may be obtained by writing:

Developmental Disabilities Project
Institute for the Future
2740 Sand Hill Road
Menlo Park, California 94025
415-854-6322

or

Alternate Media Center
School of the Arts
New York University
725 Broadway, 4th Floor
New York, New York 10003
212-598-2852

APPENDIX B

USER QUESTIONNAIRES

Please complete the questions below if you send or receive messages via OnTyme but do not use the terminal yourself:

1. How has your use of OnTyme affected your level of contact with colleagues at other UAFs?

More contact 9

Less contact

No change 4

2. Has using OnTyme directly affected your work?

Yes 8

No 5

If yes, how? _____

3. Would you like to see more UAFs using OnTyme (or some other electronic message system)?

Yes 8

No 3

Why? _____

4. For what specific activities have you found OnTyme to be especially useful?

5. If you have to pick up the cost* for your use of OnTyme, will you continue to use it?

Yes 8

No 3

*Usage fees for the _____ id have averaged _____/month over the last six months. (This figure includes usage fees only, it does not include the \$100/month charge for the entire UAF account.)

UAF ONTYME USERS SURVEY

1. Do you type or use other keyboard devices in your work?

Yes 26

No 7

2. How would you rate your typing ability?

1
Very Poor

3
Poor

13
Adequate

12
Good

4
Very Good

3. What type of computer terminal do you use?

Manufacturer: _____

Model Number: _____

4. Have you had any difficulty in using OnTyme?

Yes 15

No 18

If yes, please describe: _____

5. How much previous experience, if any, have you had using computers?

7
Much

19
Some

7
None

6. When you use OnTyme, where is your computer terminal located? (e.g., "down the hall", "in my office", "across the street", "the data processing center in the basement", etc.)

Location: _____

7. Is this location convenient for you?

Yes 29

No 4

8. How helpful was the OnType UAF Users Guide?

Very helpful	17
Somewhat helpful	12
Not at all helpful	1
Didn't see it	

9. What type of training do you think new OnTyme users at UAFs will need?

12	Individual instruction, over the phone
9	Individual instruction, in-person
4	Group instruction, over the system ✓
3	Group instruction, in-person
24	Self-instruction with user guide
	Other (please specify): _____

10. Has the use of OnTyme had any affect on your work patterns?

Yes	20
No	13

If yes, how? _____

11. How has your use of OnTyme affected your level of contact with colleagues at other UAFs?

More contact	<u>28</u>
Less contact	<u> </u>
No change	<u>5</u>

12. Has your use of OnTyme resulted in more productive communication than you believe would have been possible using:

Conventional mail only	Yes	<u>27</u>	No	<u>6</u>
Telephone calls only	Yes	<u>23</u>	No	<u>10</u>
Face to face meetings only	Yes	<u>15</u>	No	<u>17</u>

If yes, please explain: _____

13. How satisfactory do you think OnTyme would be for the following activities?

	COMPLETELY UNSATISFACTORY		COMPLETELY SATISFACTORY		
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>
Giving or Receiving Information	—	—	<u>3</u>	<u>13</u>	<u>17</u>
Problem-Solving	<u>1</u>	<u>10</u>	<u>14</u>	<u>6</u>	<u>1</u>
Bargaining	<u>2</u>	<u>13</u>	<u>13</u>	<u>3</u>	<u>1</u>
Decision-Making	<u>2</u>	<u>8</u>	<u>11</u>	<u>9</u>	<u>1</u>
Generating Ideas	<u>2</u>	<u>3</u>	<u>6</u>	<u>14</u>	<u>7</u>
Persuasion	<u>3</u>	<u>13</u>	<u>11</u>	<u>4</u>	—
Asking Questions	—	—	<u>4</u>	<u>12</u>	<u>16</u>
Resolving Disagreements	<u>3</u>	<u>12</u>	<u>15</u>	<u>1</u>	<u>1</u>
Getting to Know Someone	<u>5</u>	<u>11</u>	<u>10</u>	<u>4</u>	<u>2</u>
Giving or Receiving Instructions	—	<u>3</u>	<u>3</u>	<u>16</u>	<u>10</u>
Maintaining Friendly Relations ("Staying in Touch")	—	—	<u>4</u>	<u>14</u>	<u>14</u>
Exchanging Opinions	<u>1</u>	<u>2</u>	<u>8</u>	<u>11</u>	<u>10</u>
Others (please list)	—	—	—	—	—
	—	—	—	—	—

14. Would you like to see more UAFs using the OnTyme system?

Yes 30

No 1

Why? _____

15. What changes, if any, would you like to see in the way OnTyme is used among UAFs? _____

16. Check the features you consider important in an electronic message system used by UAFs:

32 Ability to exchange messages with specific individuals.
31 Ability to exchange messages with an entire network of users.
31 Ability to exchange messages with specific groups of users.
18 Access to common (systemwide) files.
14 Access to group files.
14 Access to private (individual) files.
23 Text editing.
16 Ability to participate with others on-line at the same time
(synchronous participation).
_____ Others (please list)

17. If you have to pick up the cost* for your use, would you continue to use OnTyme?

*Usage fees for the _____ id have averaged _____/month over the last six months. (This figure includes usage fees only, it does not include the \$100/month charge for the entire UAF account.)

Yes 24
No 3

Are there any changes you would make in your usage style (e.g., frequency, content of messages, who you would exchange messages with, etc.)?

Yes 12
No 16

If yes, what changes? _____

APPENDIX C

MESSAGE SYSTEM USER LIST

ACTIVE ONTYME IDS
September 1980

<u>Location</u>	<u>ID</u>	<u>Contact person(s)</u>
Birmingham, Alabama	UAF.BIRMHAM	Gary Myers/Roger Long
Irvine, California	UAF.IRVINE	Ken Dumars/Cathy Carley
Menlo Park, California*	UAF.IFTF	Bob Johansen/Barbara McNeal
Denver, Colorado	UAF.DENVER	William Frankenberg
Washington, D.C.(AAUAP)	UAF.WASH	Seldon Todd/Ann Cohen
Washington, D.C.	UAF.GEORGE	Phyllis Magrab
Bloomington, Indiana	UAF.BLOOMTON	Henry Schroeder
Bloomington, Indiana	UAF.BLOOMTON2	June Conger
Bloomington, Indiana	UAF.INDIANA	Mike Tracy
Indianapolis, Indiana	UAF.RILEY	Mike O'Connor/Cathy Norris
Lawrence, Kansas	UAF.LAWRENCE	Jim Budde
New Orleans, Louisiana	UAF.LUSIANA	Malcolm Martin
Waltham, Massachusetts	UAF.SHRIVER	Paul Touchette
Ann Arbor, Michigan	UAF.ISMRRD	Gene Handley/Norm Thoburn
Ann Arbor, Michigan	UAF.ANNARBOR	Kirsten Lietz
St. Paul, Minnesota	UAF.STPAUL	Cliff Ollila
Missoula, Montana	UAF.MONTANA	Bob Crow
Omaha, Nebraska	UAF.MEYER	Paul Pearson
New York, New York*	UAF.AMC	Martin Elton
Rochester, New York	UAF.ROCHESTR	Phillip Davidson

*Project staff

<u>Location</u>	<u>ID</u>	<u>Contact person(s)</u>
Staten Island, New York	UAF.ROOSEVLT	Phil Zirling
Chapel Hill, North Carolina	UAF.NCAROL	Bob Gray
Cincinnati, Ohio	UAF.CINCI	Jack Rubinstein
Cincinnati, Ohio	UAF.CINC12	Dorothy Gilroy
Columbus, Ohio	UAF.NISONGER	Vern Reynolds
Columbus, Ohio	UAF.NISONGER2	Cathy Smith/Bob Wolin
Portland, Oregon	UAF.PORTLAND	Victor Menache/Abby Rothschild
Philadelphia, Pennsylvania	UAF.TEMPLE	Ed Newman/Debbie Spitalnik
Vermillion, South Dakota	UAF.SDAKOTA	Joe Ferrara
Dallas, Texas	UAF.TEXAS	Ronald James
Logan, Utah	UAF.UTAH	Marvin Fifield
Seattle, Washington	UAF.SEATTLE	Irvin Emanuel
Madison, Wisconsin	UAF.WISCON	Cliff Gillman
Madison, Wisconsin	UAF.WISC2	Carol Overboe
Burlington, Vermont	UAF.VERMONT	Wayne Fox
FOR ASSISTANCE:	UAF.SUP	Barbara McNeal